Amendment to the Claims:

1. (Cancelled)

2. (Currently Amended) The method according to ~~claim 1~~ claim 15, wherein step (b) of generating an extended deformable surface model further comprises the steps of:

identifying surface elements of the deformable surface model relating to a particular sub-part of the training object;

selecting a geometrical primitive having a form corresponding to a form of the particular sub-part; and

fitting the geometrical primitive to the surface elements relating to the particular sub-part of the training object in the deformable surface model.

3. (Previously Presented) The method according to claim 2, wherein the additional geometrical information is associated with each surface element of the extended deformable surface model.

4. (Currently Amended) The method according to claim 3, wherein the additional geometrical information includes a sub-part identification, [[a]] the selected geometric primitive, and a method for fitting the geometric primitive.

5-7. (Cancelled)

8. (Previously Presented) An image processing device, comprising:

a memory which stores a simple training model and an image depicting an end sub-part and a shaft sub-part of a bone; and

an image processor which determines geometrical properties of the of the sub-parts of the bone, wherein the processor is programmed to perform the following operations:

(a) generating a deformable surface model of a surface of a training object, the training object being distinct from the bone depiction;

(b) generating an extended deformable surface model of the training object by associating additional geometrical information to the generated deformable surface model of the training object;

(c) adapting the extended deformable surface model to a surface of the bone, such that a one-to-one point correspondence is maintained between the extended deformable surface model of the training model and the adapted extended deformable surface model of the bone;

(d) determining the geometrical properties of the sub-parts of the bone from the adapted extended deformable surface model based on the associated additional geometrical information ; and

(e) extracting at least one measurement of interest of the sub-parts based on the determined geometrical properties.

9. (Previously Presented) A non-transitory computer-readable medium having processor-executable instructions thereon for execution by a processor of an image processing device to control the processor to determine geometrical properties of a structure of an object of interest by performing:

a) generating a deformable surface model of a surface of a training object;

(b) generating an extended deformable surface model of the training object by associating additional geometrical information to the generated deformable surface model of the training object;

(c) adapting the extended deformable surface model to a surface of the object of interest, such that a one-to-one point correspondence is maintained between the extended deformable surface model and the adapted extended deformable surface model;

(d) determining the geometrical properties of the structure of the object of interest from the adapted extended deformable surface model according to the associated additional geometrical information; and

(e) extracting at least one measurement of interest of the structure based on the determined geometrical properties.

10. (Previously Presented) A method for determining geometric properties of a subpart of an object of interest, comprising:

(a) with a processor, generating a deformable surface model represented by a polygon mesh of a surface of a training object;

(b) with the processor, extending the generated deformable surface model with additional geometrical information;

(c) with the processor, deforming the extended deformable surface model to optimally fit a surface of at least one sub-part of the object of interest;

(d) with the processor, determining geometrical properties of the object of interest based on the additional geometrical information of the deformed extended surface model fit to the sub-part.

11. (Previously Presented) The method according to claim 10, further including:

labeling elements of the polygon mesh corresponding to the at least one sub-part;

selecting a geometrical primitive having a form corresponding to a form of the particular sub-part; and

fitting the geometric primitive to the labeled elements of the polygon mesh corresponding to each of the at least one sub-part of interest.

12. (Previously Presented) The method according to claim 10, wherein the deformable surface model is generated of at least a first and a second sub-part of the training object and further including:

identifying elements of the polygon mesh fit to the first sub-part;

identifying elements of the polygon mesh fit to the second sub-part;

fitting a first geometric primitive to the elements of the polygon mesh identified to the first sub-part;

fitting a second geometric primitive to the elements of the polygon mesh identified to the second sub-part;

deforming the first and second primitives as part of the deformed extended surface model; and

determining the geometric properties of the object of interest using properties of the first and second deformed geometric primitives of the deformed extended surface model.

13. (Previously Presented) The method according to claim 12, wherein the object of interest is a bone, the first and second sub-parts are an end and a shaft, respectively, of the bone, the first and second geometric primitives are a sphere and a line, respectively, and the geometric property of the object of interest is at least one of a location, an orientation, and/or a center which are derived directly from parameters of the first and second deformed primitives.

14. (Previously Presented) The method according to claim 10, wherein the step of deforming the extended deformable surface model to optimally fit the surface of the at least one sub-part of the object of interest, further includes:

identifying a plurality of surface points of the surface of the sub-part of the object of interest; and

altering the polygon mesh to fit vertices of the polygons mesh to the identified surface points.

15. (Currently Amended) [[The]] A method ~~according to claim 1,~~ for determining geometrical properties of a structure of an object of interest displayed in an image, comprising the steps of:

(a) generating a deformable surface model of a surface of a training object, wherein the deformable surface model includes a mesh of triangles;

(b) generating an extended deformable surface model of the training object by associating additional geometrical information to the generated deformable

surface model of the training object, wherein [[and]] the step [[(b)]] of generating an extended deformable surface model includes:

identifying triangles belonging to sub-parts of the training object;

labeling the triangles belonging to the respective sub-parts of the training object;

selecting a geometric primitive in accordance with a measurement to be carried out and a form of a selected corresponding sub-part;

fitting the geometric primitive to ~~the~~ surface elements labeled to the selected corresponding sub-part;

determining a rule which defines the selected geometric primitive and a method which fits the selected primitive onto the selected corresponding sub-part; and

labeling each triangle with the determined rule along with the respective sub-part label to generate an extended deformable surface model;

(c) adapting the extended deformable surface model to a surface of the object of interest, such that a one-to-one point correspondence is maintained between the extended deformable surface model and the adapted extended deformable surface model;

(d) determining the geometrical properties of the structure of the object of interest from the adapted extended deformable surface model according to the associated additional geometrical information ; and

(e) extracting at least one measurement of interest of the structure based on the determined geometrical properties.

16. (Previously Presented) The method according to claim 18, wherein the object is a femur and the subparts include a femur head and a femur shaft.

17. (Previously Presented) The method according to claim 16, wherein the geometric primitive fit to the femur head includes a sphere and the geometric primitive fit to the femur shaft includes a straight line.

18. (Previously Presented) The method according to claim 15, wherein each triangle having a normal and the step (c) of adapting the extended deformable surface model includes:

for each triangle, searching along a triangle normal to find a point of intersection with the surface of the object of interest;

formulating an energy function between the points of intersection and vertices of the triangular mesh;

minimizing the energy function to define new coordinates for the vertices of the triangular mesh; and

iteratively repeating the steps of searching along a triangle normal, formulating an energy function, and minimizing the energy function to generate the adapted extended deformable surface model.

19-20. (Cancelled)

21. (Currently Amended) The method according to claim 18, wherein the structure of the object of interest corresponds to the selected corresponding sub-part and the step (d) of determining geometrical properties of the structure of the object of interest includes:

extracting the vertex coordinates of the triangular mesh of the selected corresponding sub-part;

fitting [[a]] the geometric primitive to the extracted coordinates according to the rule labeled to the respective triangles; and

estimating parameters which define at least one geometrical property of the fitted geometric primitive.

22. (Currently Amended) The method according to ~~claim 1~~ claim 15, wherein the training object and the object of interest are distinct.

23. (Previously Presented) The method according to claim 2, wherein the one-to-one correspondence ensures that the position of a surface element and the number of surface elements are maintained after adaptation.

24. (Previously Presented) The image processing device according to claim 8, wherein the bone is a femur, the end sub-part is a femur head, and the shaft sub-part is a femur shaft.

25. (Currently Amended) An image processing device, comprising:

a processor programmed to perform the method of ~~claim 1~~ claim 15; and

a memory which stores the deformable surface model of the training object and an image depicting the object of interest.